b) testing the patient to characterize a polymorphism in the interferon gamma gene.

25. (Newly Added) The method of claim 24, wherein the polymorphism occurs within a variable length dinucleotide repeat region within the first intron.

26. (Newly Added) The method of claim 25, wherein the variable length dinucleotide repeat region is at least partly located between nucleotides 1349 and 1373 in the interferon gamma gene.

27. (Newly Added) The method of claim 24, wherein the characterization of the polymorphism is carried out so as to be capable of identifying alleles selected from the group consisting of a 126bp allele and a 122bp allele.

28. (Newly Added) The method of claim 24 wherein, the characterization of the polymorphism is carried out so as to be capable of resolving alleles having a different number of CA repeats in a portion of the first intron of the interferon gamma gene.

29. (Newly Added) The method of claim 24, wherein the arthritis is rheumatoid arthritis.

30. (Newly Added) The method of claim 24, wherein the patient is Caucasian.

31. (Newly Added) The method of claim 24, wherein the step of identifying the patient at risk of the arthritis comprises diagnosing the patient with rheumatoid arthritis.

32. (Newly Added) The method of claim 24, wherein the step of identifying the patient at risk of the arthritis comprises diagnosing the patient with a symptom selected from the group consisting of joint erosions, elevated erythrocyte sedimentation rate, C-reactive protein, polyarticular disease, joint deformities, radiological evidence of subchondral erosions, extra-articular arthritis, and the presence of rheumatoid factor.

33. (Newly Added) The method of claim 24, wherein the characterization of the polymorphism comprises amplification of a variable length dinucleotide repeat region.

34. (Newly Added) A method of diagnosing the susceptibility of a patient to arthritis, the patient having an interferon gamma gene, comprising testing the patient to characterize a polymorphism in a first intron of the interferon gamma gene.

35. (Newly Added) A method of treating a patient having an interferon gamma gene, comprising testing the patient to characterize a polymorphism in the interferon gamma gene; and, treating the patient for arthritis if the polymorphism is indicative that the patient is at risk of an arthritis.

36. (Newly Added) The method of claim 35, wherein the polymorphism occurs within a variable length dinucleotide repeat region within a first intron.

37. (Newly Added) The method of claim 34, further comprising testing the patient to characterize a polymorphism in an HLA gene.

38. (Newly Added) The method of claim 37, wherein the HLA gene comprises an *HLA-DRB1* locus.

39. (Newly Added) The method of claim 37, further comprising testing the patient to characterize a portion of the sequence of an HLA protein.

40. (Newly Added) The method of claim 39, wherein the HLA protein is a Class II protein.

41. (Newly Added) The method of claim 39, wherein the HLA protein is a HLA-DRB1 protein.

42. (Newly Added) The method of claim 41, wherein the portion of the sequence is amino acid 71.

43. (Newly Added) A method of diagnosis, comprising:
    a) identifying a patient at risk of an arthritis, the patient having an interferon gamma gene;
    b) obtaining a tissue sample from the patient;

c) testing the tissue sample to characterize a polymorphism in the interferon gamma gene.

44. (Newly Added) The method of claim 43, wherein the polymorphism occurs within a variable length dinucleotide repeat region within the first intron.

45. (Newly Added) The method of claim 44, wherein the variable length dinucleotide repeat region is at least partly located between nucleotides 1349 and 1373 in the interferon gamma gene.

46. (Newly Added) The method of claim 43, wherein the characterization of the polymorphism is carried out so as to be capable of identifying alleles selected from the group consisting of a 126bp allele and a 122bp allele.

47. (Newly Added) The method of claim 43, wherein the characterization of the polymorphism is carried out so as to be capable of resolving alleles having a different number of CA repeats in a portion of the first intron of the interferon gamma gene.

48. (Newly Added) The method of claim 43, wherein the arthritis is rheumatoid arthritis.

49. (Newly Added) The method of claim 43, wherein the patient is Caucasian.

50. (Newly Added) The method of claim 43, wherein the step of identifying the patient at risk of the arthritis comprises diagnosing the patient with rheumatoid arthritis.

51. (Newly Added) The method of claim 43, wherein the step of identifying the patient at risk of the arthritis comprises diagnosing the patient with a symptom selected from the group consisting of joint erosions, elevated erythrocyte sedimentation rate, C-reactive protein, polyarticular disease, joint deformities, radiological evidence of subchondral erosions, extra-articular arthritis, and the presence of rheumatoid factor.

52. (Newly Added) The method of claim 43, wherein the characterization of the polymorphism comprises amplification of a variable length dinucleotide repeat region.

53. (Newly Added) A method of diagnosing the susceptibility of a patient to arthritis, the patient having an interferon gamma gene, comprising testing the patient to characterize a polymorphism in a first intron of the interferon gamma gene.

54. (Newly Added) The method of claim 46, wherein:

a) the 126 bp allele comprises 14 CA repeats of SEQ ID No. 3; and

b) the 122 bp allele comprises 12 CA repeats of SEQ ID No. 1.

55. (Newly Added) The method of claim 27, wherein:
    a) the 126 bp allele comprises 14 CA repeats of SEQ ID No. 3; and
    b) the 122 bp allele comprises 12 CA repeats of SEQ ID No. 1.

REMARKS

Early consideration and allowance of the above-referenced patent application is respectfully requested.

Claims 1-23 have been canceled. Claims 24-55 have been added.

The claims have been amended to remove multiple dependencies and to otherwise conform with U.S. claim practice. No new matter has been entered. None of the amendments change the scope of any claim, nor are any amendments submitted for reasons of patentability.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

Respectfully submitted,

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